approach is in the global context of less patient fragility and the positivity of an ischemia test.

CRT-136*

Retrograde Recanalization of Chronic Total Occlusions in Europe: Procedural and In-Hospital Outcomes from the Multicenter Ercto Registry

Alfredo R. Galassi,[1] George Sianos,[2] Nicolaus Reifart,[3] Marine Castaing,[4] Javier Escaned,[5] Francesco Marza,[6] Salvatore D. Tomasello,[7] Carlo Di Mario,[8] Gerald Werner,[9] EURO CTO[10]

[1]*Department of Medical Sciences and Pediatrics, Catheterization Laboratory and Cardiovascular Interventional Unit, Cannizzaro Hospital, University of Catania, Italy;* [2]*Institute of Cardiology, University Ahepa of Greece, Greece;* [3]*Main Taunus Kliniken, Bad Soden, Germany;* [4]*Department of Higiene, University of Catania, Italy, Italy;* [5]*Cardiology Clinic Hospital, Madrid, Italy;* [6]*Ferrarotto Hospital, University of Catania, Italy, Italy;* [7]*Cannizzaro Hospital, Catania, Italy;* [8]*Royal Brompton Hospital, University of London, Italy, United Kingdom;* [9]*Klinikum Darmstad, University of Catania, Italy, Germany;* [10]*EUROPE, Bad Soden, Italy*

Objective: The aim of this study was to describe the five-year European experience of retrograde percutaneous coronary interventions (PCI) revascularization for complex chronic total occlusions (CTOs) of coronary arteries.
Background: Retrograde approach increases the success rate of percutaneous recanalization of complex CTOs of coronary arteries.
Methods: Demographic data, procedural outcomes and in-hospital clinical events were collected on 1582 consecutive lesions of 1395 patients enrolled between January 2008 and December 2012 having retrograde CTO PCI at 44 European medical centers by 45 experienced interventionalist operators. A revision of J-CTO score proposed for antegrade lesions was used to better describe success according to lesion difficulty.
Results: Patients mean age was 62.0±10.4 years, 88.5% were men, 17.6% had prior coronary artery bypass surgery. The CTO target vessel was the right coronary artery (70.4%), circumflex (7.8%), left anterior descending artery (20.3%), and left main artery or by-pass graft (1.5%). The retrograde approach was used after prior failed attempt in 43.5% of cases. During the procedure the retrograde approach was used as first line strategy in 76.2% of cases, while immediately after antegrade failed approach in 23.8% of cases. Retrograde collateral vessels were septal (62.7%), epicardial (13.4%), by-pass graft (3.9%) or missing information (20.0%). Technical success was 75.3% (n=1.191). The mean contrast volume and fluoroscopy time were 396.3±171.3 ml and 69.8±34.1 mins, respectively. A major complication occurred in 16 patients (1.0%). In multivariable analysis, age of the patient (per 10-year increase), lower operator volume (<50, 50-100, >100), increased J-CTO score were significantly associated with increased technical failure, (p=0.01, p<0.001, p<0.001), respectively.
Conclusion: In Europe among selected centers dedicated to CTO revascularization, retrograde approach was performed over a 5-year period in 16.5% of these patients. The number of retrograde procedures were exponentially increasing during the last 2 years and were associated with high success and low major complications rates.

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Myocardial Perfusion in Patients with Total Occlusion of a Single Coronary Artery with and without Collateral Circulation

Maged S. El-Gantiry
Dar Al Fouad Hospital, 6th of October - Cairo, Egypt

Background: Previous studies that investigated the effects of coronary collateral circulation on myocardial perfusion were compromised by inclusion of patients with multivessel coronary artery disease, incomplete occlusion, prior myocardial infarction, or a combination of these.
Aim of work: In this study we will investigate the relationship between angiographic collateral circulation and myocardial perfusion in patients with total occlusion of a single coronary artery, in the absence of myocardial infarction or significant stenosis in the other coronary arteries supplying the same myocardial territory.
Methods and Results: Forty patients underwent stress myocardial single photon emission computed tomography within 90 days of angiography. Collateral circulation was present in 24 patients (group A) and absent in 16 patients (group B). Reversible perfusion defects were present in 22(91.7%) patients in group A and in 12(75%) in group B, comparison between both groups came back statistically insignificant (p-value = NS). Group A included 4(18.2%) patients with a small size defect (<5%), 9(40.9%) patients with a moderate perfusion defect (5-10%) and 9(40.9%) patients with a large perfusion defect (>10%); while group B had 2(16.6%) patients with small perfusion defect, 5(41.6%) patients with a moderate perfusion defect and also 5(41.6%) patients with a large perfusion defect, comparison between both groups came back statistically insignificant (p-value = NS). The mean exercise time for patients in group A was 6.9 ±0.92 minutes and their mean achieved peak METs was 7.35±0.35 METs. On the other hand; the mean exercise time for patients in group B was 6.9 ±0.83 minutes and their mean peak METs was 7.23±0.25 METs. Comparison between both groups also appeared to be statistically insignificant (p-value = NS).
Conclusion: In patients with a single-vessel total coronary occlusion and without myocardial infarction, stress-induced myocardial ischemia is almost always present, irrespective of presence or absence of angiographic collaterals. These data suggest that coronary collaterals do not appear to protect against stress-induced perfusion defects. Nevertheless collaterals in our study did not have any positive impact on the functional capacity of patients, predicted by the analysis of exercise duration and achieved peak METs.

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Restenotic Stented Versus De Novo Chronic Total Occlusion Outcomes Following Successful Intervention with Drug-eluting Stents

Sang-Ho Park,[1] Seung-Woon Rha,[2] Byoung Geol Choi,[2] Se Yeon Choi,[2] Raghavender Goud Akkala,[2] Li Hu,[2] Ji Young Park,[3] Woong Gil Choi,[4] Yun-Hyeong Cho,[5] Won-Yu Kang,[6] Dong Joo Oh[2]

[1]*Cardiology Department, Soonchunhyang University Cheonan Hospital, Cheonan, Korea, Republic of;* [2]*Cardiovascular Center, Korea University Guro Hospital, Seoul, Korea, Republic of;* [3]*Cardiovascular Center, Eulji University, Eulji General Hospital, Seoul, Korea, Republic of;* [4]*Cardiology, Chungju Kunkuk University, Chungju, Korea, Republic of;* [5]*Cardiovascular Center, Myongji Hospital, Goyang, Korea, Republic of;* [6]*Cardiovascular center, Kwanju Bohoon General Hospital, Kwangju, Korea, Republic of*

Background: There are limited data comparing angiographic and clinical outcomes of re-stenotic stented chronic total occlusive (CTO) lesion successfully revascularized with drug-eluting stents (DESs) with those of de novo CTO lesion.
Methods: The study population consisted of consecutive 269 CTO patients (pts) who successfully treated with DESs between January 2004 and June 2010. A total 249 pts with de novo CTO lesion and 20 pts with re-stenotic stented CTO lesion were included for analysis. The 6-to-9 month angiographic and 2-year clinical outcomes were compared between the 2 groups.
Results: The baseline clinical characteristics were similar between the two groups except prior myocardial infarction, LDL-cholesterol level, number of total implanted stent and use of cilostazol. Angiographic outcomes at 6-to-9 months were similar between the two groups. At 2-year follow-up, the incidence of major clinical outcomes including all death, any myocardial infarction, any revascularization, target lesion and vessel revascularization (TLR and TVR) and major adverse cardiac events (MACEs) were similar between the two groups (Table). Further, even after adjustment of baseline differences with multivariate analysis adjusted by age, gender, dyslipidemia, LVEF, Lefevre classification, all the major clinical outcomes were similar between the two groups.
Conclusion: In our study, there were no difference in 6-to-9 month angiographic and 2-year clinical outcomes between pts with stented and de novo CTO lesions once the CTO pts were successfully treated with DESs.

*Indicates iMPACT Trial Accepted for Oral Presentation

Table: 6-to-9 month angiographic and 2-year clinical outcomes

Variables, n (%)	De Novo CTO	stented CTO	*P** value
6-to-9 month Angiographic outcomes	**n=146**	**n=7**	
In-stent restenosis	44 (30.1)	2 (28.6)	0.647
Binary restenosis	22 (15.1)	2 (28.6)	0.302
2-year clinical outcomes	**n=209**	**n=17**	
All death	8 (3.8)	1 (5.9)	0.512
Any myocardial infarction	6 (2.9)	0 (0.0)	0.622
Any Revascularization	37 (17.7)	2 (11.8)	0.41
TLR	28 (13.4)	1 (5.9)	0.328
TVR	32 (15.3)	2 (11.8)	0.513
Non-TVR	5 (2.4)	0 (0.0)	0.674
Total MACE	44 (21.1)	3 (17.6)	0.513
TLR MACE	32 (15.3)	1 (5.9)	0.256
TVR MACE	40 (19.1)	3 (17.6)	0.589
Stent thrombosis	0 (0..0)	1 (0.4)	0.922

* Fisher exact test

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Predictors Associated with Major Adverse Cardiac Events Following Successful Chronic Total Occlusion Intervention with Drug-Eluting Stents

Sang-Ho Park,[1] Seung-Woon Rha,[2] Byoung Geol Choi,[2] Se Yeon Choi,[2] Ji Young Park,[3] Woong Gil Choi,[4] Yun-Hyeong Cho,[5] Won-Yu Kang,[6] Dong Joo Oh[2]
[1]*Cardiology Department, Soonchunhyang university cheonan hospital, Cheonan, Korea, Republic of;* [2]*Cardiovascular Center, Korea University Guro Hospital, Seoul, Korea, Republic of;* [3]*Cardiovascular Center, Eulji University, Eulji General Hospital, Seoul, Korea, Republic of;* [4]*Cardiology, Chungju Kunkuk University, Chungju, Korea, Republic of;* [5]*Cardiovascular Center, Myongji Hospital, Goyang, Korea, Republic of;* [6]*Cardiovascular center, Kwanju Bohoon General Hospital, Kwangju, Korea, Republic of*

Background: There is limited evidence regarding predictors associated with clinical outcomes of patients with chronic total occlusion (CTO) successfully treated with drug-eluting stents (DESs).
Methods: We investigated the 249 patients (pts) with de novo CTO lesions successfully treated with DESs from 2004 to 2010. All major adverse cardiovascular events (ALL-MACEs) were defined as composite of total death, any myocardial infarction (MI), target vessel revascularization (TVR) and non-target vessel revascularization. The association of ALL-MACEs with clinical, biochemical and procedural variables including age, male gender, hypertension, diabetes mellitus, smoking, hyperlipidemia, acute MI, multi-vessel disease, left main involvement, prior PCI, cilostazol, left ventricular ejection fraction <30 %, Hemoglobin level, Creatinine level, LDL-cholesterol<100 mg/dL, Glycated hemoglobin<7.0 %, High sensivity-CRP, number of total stents, IVUS-guided PCI, adjuvant ballooning was examined.
Results: The 12-month follow-up has been performed in the 242 of 249 pts (97.2%). The incidence of ALL-MACEs was the 40 of 242 patients (16.5%). Multivariate logistic regression was used to identify predictors affecting 1-year ALL-MACE. Left main involvement was significantly associated with 1-year ALL-MACEs and prior PCI history had a trend to be associated with 1-year ALL-MACEs (Table).
Conclusion: In our study, left main involvement was an important independent predictor associated with 1-year MACE following successful CTO intervention with DES.

Table. Predictors associated with 1-year ALL-MACEs following CTO intervention

Variables	P value	OR	95% CI
Age, per 1-year	0.168	1.047	0.981-1.118
Male	0.577	0.617	0.113-0.365
Hypertension	0.788	1.188	0.339-4.166
Diabetes mellitus	0.539	0.609	0.125-2.962
Smoking	0.112	3.205	0.763-13.469
Hyperlipidemia	0.929	1.061	0.292-3.855
Acute Myocardial infarction	0.295	2.082	0.527-8.220
Multi-vessel disease	0.975	0.979	0.261-3.675
Left main involvement	0.045	10.254	1.055-99.688
History of prior PCI	0.074	4.229	0.868-20.594
Cilostazol	0.225	2.329	0.595-9.123
Left ventricular ejection fraction<30%	0.416	0.361	0.031-4.201
Hemoglobin level, per 1g/L	0.506	0.884	0.614-1.271
Creatinine level, per 1mg/d L	0.158	2.234	0.732-6.822
LDL-cholesterol < 100 mg/dL	0.338	1.928	0.504-7.375
Glycated hemoglobin < 7.0 %	0.641	1.463	0.297-7.214
High sensivity-CRP, per 1 mg/dL	0.696	0.997	0.983-1.011
Number of total stent implantation	0.436	0.835	0.530-1.315
IVUS-guided PCI	0.597	1.544	0.309-7.725
Adjuvant ballooning	0.378	1.717	0.516-5.720

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Impact of Percutaneous Coronary Intervention on 12-month Chronic Total Occlusion Outcomes in Patients with Myocardial Infarction

Seung-Woon Rha,[1] Byoung Geol Choi,[1] Se Yeon Choi,[1] Sang-Ho Park,[2] Ji Young Park,[3] Woong Gil Choi,[4] Yun-Hyeong Cho,[5] Won-Yu Kang,[6] Dong Joo Oh[1]
[1]*Cardiovascular Center, Korea University Guro Hospital, Seoul, Korea, Republic of;* [2]*Cardiology Department, Soonchunhyang university cheonan hospital, Cheonan, Korea, Republic of;* [3]*Cardiovascular Center, Eulji University, Eulji General Hospital, Seoul, Korea, Republic of;* [4]*Cardiology, Chungju Kunkuk University, Chungju, Korea, Republic of;* [5]*Cardiovascular Center, Myongji Hospital, Goyang, Korea, Republic of;* [6]*Cardiovascular center, Kwanju Bohoon General Hospital, Kwangju, Korea, Republic of*

Background: Myocardial infarction (MI) is known to be associated with increased adverse clinical outcomes in coronary artery diseases. The impact of percutaneous coronary intervention (PCI) for CTO in patients with myocardial infarction is not clear. We evaluated the 12-month clinical outcomes between PCI and optimal medical therapy (OMT) for CTO lesions in MI patients.
Methods: A total of 143 consecutive CTO patients who were admitted for MI were divided into 2 groups according to treatment strategy; PCI group (n=68) and OMT group (n=75). 12-month clinical outcomes were compared between the two groups.
Results: At baseline, patients in the OMT group showed a higher prevalence of elderly, hyperlipidemia, peripheral vascular disease, de novo lesion, non-CTO procedure, multivessel disease, and LCX-CTO. Patients in the PCI group showed a higher prevalence of prior MI, prior PTCA, and LAD-CTO lesion. Clinical outcomes at 12 months showed lower mortality and lower rates of recurrent MI in the PCI group. After baseline adjustment by multivariate analysis, however, there was no difference.
Conclusion: In our study, intervention shows a possibility of being a favorable choice of therapy for CTO lesions in MI patients in terms of 12-month mortality and MI-related morbidity. Long-term follow up with a larger study population will be necessary for further determination of the benefit and risks of interventional therapy in CTO patients.